

CLAIMS

1. A disc drive comprising:

a housing having formed at the front side thereof a disc slot through which each of large- and small-diameter optical discs different in outside diameter from each other is introduced and ejected;

a base unit including a base on which there are provided together a disc mount onto which the optical disc introduced from the disc slot into the housing is to be set, a disc rotation driving mechanism to drive, by rotation, the optical disc set on the disc mount, an optical pickup to write or read information signals to the optical disc being rotated by the disc rotation driving mechanism while irradiating a light beam condensed by an objective lens to the signal recording surface of the optical disc and a pickup moving mechanism to move the optical pickup radially of the optical disc; and

a disc carrying mechanism to selectively carry the optical pickups having different outside diameters between a disc insertion/ejection position where the disc is inserted or ejected from the disc slot and a disc setting position where the optical disc is to be set,

the optical pickup including an objective lens moving mechanism to move the objective lens at least in a direction parallel to the optical axis of the objective lens and a driving control circuit that controls the objective lens moving mechanism to retreat the objective lens in a direction away from the signal recording surface of a

small-diameter one of small- and large-diameter optical discs different in outside diameter from each other, which is set on the disc mount, when the pickup moving mechanism moves the optical pickup between the outer and inner radii of the small-diameter optical lens.

2. The apparatus according to claim 1, wherein the disc carrying mechanism includes a plurality of pivoting members having provided at the free end thereof an abutment portion to abut the periphery of the optical disc inserted from the disc slot and having the base end thereof pivotably supported so that it is pivotable in a plane parallel to the optical disc, these pivoting members cooperating with each other to carry the large- or small-diameter optical disc.

3. The device according to claim 2, wherein the objective lens moving mechanism moves the objective lens to a position where it will be prevented from being put into contact with the abutment portions of the pivoting members.

4. The device according to claim 1, further comprising a base lifting mechanism having a chucking mechanism to hold the optical disc on the disc mount and which moves the base between a chucking position where the optical disc is held on the disc mount by the chucking mechanism and a position where the optical disc is released from being held by the chucking mechanism,

the driving control circuit detecting the completion of the chucking of the optical disc by the base lifting mechanism, then retreating the objective lens in a direction away from the signal recording surface of the small-diameter optical disc and

controlling the objective lens moving mechanism and pickup moving mechanism to move the optical pickup between the outer and inner radii of the small-diameter optical disc while keeping the objective lens retreated.

5. The device according to claim 1, wherein the driving control circuit positions the optical pickup at the outermost radius of the optical disc in the moving direction of the optical pickup until the disc carrying mechanism completely carries the optical disc onto the disc mount.

6. The device according to claim 1, wherein before the optical disc to be set on the disc mount is identified to be a large- or small-diameter one, the driving control circuit retreats the objective lens in a direction away from the signal recording surface of the optical disc irrespectively of the optical disc when the pickup moving mechanism moves the optical pickup.

7. A method of controlling a disc drive including:

a housing having formed at the front side thereof a disc slot through which each of large- and small-diameter optical discs different in outside diameter from each other is introduced and ejected;

a base unit including a base on which there are provided together a disc mount onto which the optical disc introduced from the disc slot into the housing is to be set, a disc rotation driving mechanism to drive, by rotation, the optical disc set on the disc mount, an optical pickup to write or read information signals to the optical disc being rotated by the disc rotation driving mechanism while irradiating a light beam

condensed by an objective lens to the signal recording surface of the optical disc and a pickup moving mechanism to move the optical pickup radially of the optical disc; and

a disc carrying mechanism to selectively carry the optical pickups having different outside diameters between a disc insertion/ejection position where the disc is inserted or ejected from the disc slot and a disc setting position where the optical disc is to be set,

the objective lens being retreated in a direction away from the signal recording surface of a small-diameter one of small- and large-diameter optical discs different in outside diameter from each other, which is set on the disc mount, when the optical pickup is moved between the outer and inner radii of the small-diameter optical lens.

8. The method according to claim 7, wherein the disc carrying mechanism includes a plurality of pivoting members each having provided at the free end thereof an abutment portion to abut the periphery of the optical disc inserted from the disc slot and having the base end thereof pivotably supported so that it is pivotable in a plane parallel to the optical disc, the objective lens being retreated to a position where it will be prevented from being put into contact with the abutment portion of each pivoting member when these pivoting members cooperate with each other to carry the large- or small-diameter optical disc.